9. Cost Estimate

The following preliminary costs include estimates for all elements of the Levee System Integrity Program Plan. (Refer to the "Funding" section and Appendix B, "Cost Estimate Backup and Report" for additional information.)

9.1 DELTA LEVEE BASE LEVEL PROTECTION PLAN

This estimate is for the total cost to rehabilitate and maintain project and non-project levees in the legal Delta up to the PL 84-99 standard. The estimate assumes that major rehabilitation or reconstruction work will be performed on approximately 520 of the 1,100 miles of levee in the Delta. The remaining levees are assumed to meet or exceed the PL 84-99 standard. Seismic stability upgrades are not included in the Base Level Protection Plan, although some minor reduction in levee fragility is expected. The estimate includes costs for engineering planning and design; geotechnical analyses; construction inspection; contract administration; obtaining environmental permits and dealing with regulatory requirements; funding for the CMARP-related costs; erosion protection; environmental mitigation; maintenance; an overall contingency; and lands, easements, rights of way, relocations, and disposal areas (LERRDS).

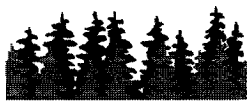
The estimate assumes that major rehabilitation or reconstruction work will be performed on approximately 520 of the 1,100 miles of levee in the Delta.

Because unit costs of Delta levee work vary substantially, a low and high cost estimate were provided to evaluate projects. The preliminary cost estimate to achieve the base level protection ranges from $600 to $1,300 million.

9.1.1 ASSUMPTIONS:

The estimate assumes that:

- A majority of the design, construction, and right-of-way acquisition will be accomplished with local resources.
- Local borrow is readily available on the islands and beneficial reuse of dredged materials will be maximized where economically feasible.



9.2 DELTA LEVEE SPECIAL IMPROVEMENT PROJECTS

The preliminary cost estimate to add Special Improvement Projects is $360 million. The estimate is based on DWR Central District's request for approximately $12 to $15 million a year to support Special Projects. Central District has been requested to provide additional information on scope, schedule, and costs. Special Improvement Projects could include seismic stability upgrades to selected levees.

Special Improvement Projects could include seismic stability upgrades to selected levees.

9.2.1 ASSUMPTIONS:

The estimate assumes that:

- Special improvement projects will enhance the base level flood control improvements.
- A majority of the design, construction, and right-of-way acquisition will be accomplished with local resources.
- Local borrow is readily available on the islands.
- Beneficial reuse of dredged materials will be maximized.

9.3 DELTA LEVEE SUBSIDENCE CONTROL

The primary cost estimate for subsidence control and management is $70 million.

9.3.1 ASSUMPTIONS:

The estimate assumes that:

- Subsidence projects will be directed at control and management of subsidence as it affects levee system integrity.
- Subsidence control measures will be incorporated with base level and Special Improvement Projects to upgrade levees.
- A majority of the design, construction, and right-of-way acquisition will be accomplished with local resources.
- Local borrow is readily available on the islands.

- Beneficial reuse of dredged materials will be maximized where economically feasible.

9.4 DELTA LEVEE EMERGENCY MANAGEMENT AND RESPONSE PLAN

The preliminary cost estimate for the Emergency Management and Response element is $68 million.

9.4.1 ASSUMPTIONS:

The estimate assumes that:

- Emergency management and response will be accomplished through existing programs.
- A $10 million emergency response fund will be established and maintained.

The estimate assumes that emergency management and response will be accomplished through existing programs.

9.5 DELTA LEVEE SEISMIC RISK ASSESSMENT

The preliminary cost estimate for continuing the Seismic Risk Assessment element is $5 million.

9.5.1 ASSUMPTIONS:

The estimate assumes that:

DWR will continue to lead the evaluation of seismic risk.

- Projects and research will include updates to area seismicity, evaluation of ground motion response, determination of soil parameters, and continuous site monitoring.

DWR will continue to lead the evaluation of seismic risk.